# EQUATOR RESOURCES LIMITED

#### ACN: 127 411 796

#### 17 February 2017

# PAST PRODUCING TECK CORPORATION "SILVERFIELDS" MINE ACQUIRED

- HISTORIC SILVERFIELDS MINE ACQUIRED: Addition of the Silverfields mining property to the company's portfolio of assets in the Cobalt Region, Ontario Canada ("Cobalt Camp"). The acquisition was recently completed by the company's now wholly owned subsidiary Ophiolite Consultants Pty Ltd.
- KNOWN COBALT MINERALISATION: The addition of Silverfields to the company's asset base at the Cobalt Camp is a further step in the company's strategy to acquire significant historical producing mines with cobalt potential in the region. The mine was a significant silver production centre between 1964 and 1983 (18.2Moz Ag from 1.42Mt ore<sup>i</sup>). Historical reports indicate substantial cobalt grades in silver ore however the project's cobalt potential remains untested cobalt was used as a tracer for silver mineralisation but not targeted in its own right.
- ADVANCED ASSET: Silverfields has substantial existing underground mine workings related to past operations. The company believes re-entry following rehabilitation of existing adits will open up a significant amount of strike length of known structures for modern cobalt focussed exploration and production.

Equator Resources Limited (ASX: EQU) (the "Company" or "Equator") is pleased to announce the addition of the historic Silverfields mine property ("Silverfields") a mine previously owned by Teck Corporation Ltd to its extensive portfolio of properties in Cobalt, Ontario. The operation was historically mined for silver mineralisation with cobalt being an unpaid or underpaid by-product.

Silverfields was operated by Teck Corporation from 1964 to 1983 and was one its key operations in Canada at the time. It was a prolific silver producer producing 18Moz of Ag at 12.8oz/ ton (362 g/t Ag).

Mineralisation at the mine included silver-cobalt arsenides typical of the Cobalt camp. At the time cobalt was used as a tracer to target silver mineralisation and not targeted in its own right. Cobalt production was not tracked separately as most refineries which received the ore at the time generally did not pay for cobalt content so there was no economic incentive to target Co-rich or high Co-low Ag areas. Cobalt credits were only paid in a few circumstances when concentrates were sold to specific refineries capable of capturing the product (e.g. Boliden, Finland)

The resident geologist from the Kirkland Lake Resident Geologist Office, Ontario Ministry of Northern Development and Mines reported in the early 1980s that cobalt was grading 1.0% Co in the ore and historic maps and other notes indicate the presence of cobalt throughout the mine operations<sup>ii</sup>.



Figure 1: Project Location and Geology

## Silverfields

Silverfields comprises four patented mining claims (surface rights included) near the town of Cobalt. The mine, an underground operation, was historically accessed via an adit (Meteor Ramp) and a shaft (Alexandra Shaft).

Underground workings related to silver mining are significant at the operation across 6 levels down to a depth of approximately 200m below surface. The company believes these underground workings will, following rehabilitation allow access for modern exploration targeting cobalt mineralisation.



Plate 1: Historic Headframe at Silverfields

Historical estimates of past production sourced from the Northern Ontario Mines Department indicate that 1.42Mt of silver ore was mined over 19 years to 1983. This implies an endowment of about 8,500t of mineralised material per vertical metre and an average annualised production rate of 81,400t per annum.

Level 1, 35 Richardson Street, West Perth WA 6005 www.equatorresources.com.au The company considers this highly encouraging given the principal method of mining employed to recover the silver rich veins was small scale (air leg mining) which may potentially be increased via mechanised methods.

## Geology and Exploration Strategy:

The Silverfields deposit is composed of principal ore veins, cross-veins, masses of mineralized Keewatin interflow rocks, and disseminated minerals in the Gowganda Formation, Coleman Member. Only the principal ore veins contain silver ore and they occur primarily in the Coleman Member.

The veins also contain cobalt indicator minerals such as arsenides and native silver (principal metal veins). The arsenides, including nickel, cobalt, and iron varieties, occur as massive lenses and disseminated grains in the carbonate veins. Some massive lenses extend across the entire widths of the veins, others present as irregular bodies in the centers of the veins, and still others occur at the edges of the veins.

The distribution of cobalt indicator minerals from top to bottom of the veins are rich in the following elements (1) nickel, (2) cobalt and (3) iron. The veins are can be classified as Ni-As, Ni-Co-As, Co-Fe-As, and Fe-As.

Silver grades exhibit a very different zonation implying that previous production has excluded multiple areas of cobalt mineralisation.





# Implications for Co Targets

- Cobalt and silver mineralisation occurs in calcite veins in close association
- Cobalt indicator minerals are not correlated to silver grades - high grade zones cross cut indicator mineral zones
- Historical production targeting silver didn't focus on cobalt mineralisation

   low grade silver zones likely to have Co-mineralisation in-situ
- Re-entry of the mine workings considered possible with establishment of drill platforms to follow rehabilitation
- Drill out of interpreted cobalt rich zones to follow

#### **Background on the Cobalt Camp Project**

The Cobalt area is an established Tier-1 mining district, with extensive road, rail and port infrastructure, able to target future production to key North American, and export markets. The district is a proven mining region with over 600Moz Ag and 45Mlbs of Co production from previous operating mines. Much of this silver was extracted in early 1900's, with minimal focus on Co or on high grade Co regions which were typically left behind or used as a tracer to track silver.

Mineralisation in the area occurs as silver-cobalt arsenides plus other cobalt arsenides such as skutterudite, cobaltite, smaltite hosted within quartz and calcite veins. Historical sampling from some of these veins (Lang-Caswell) shows exceptionally high grades of cobalt (4-12%). (source: Northern Ontario Ministry of Development and Mines "MNDM")

Within the Assets, up to 80-90% of mineralised zones is related to the Nipissing diabase, Huronian sediments and Keewatin volcanics - particularly near contact points between the diabase and the latter two rock types, which is typical regionally. The Assets cover over 20kms of highly prospective ground along these contact points.

The Project claims include and are adjacent to former operating mines with historic silver and cobalt production. Miners in early 1900s targeted easy to access outcrop due to the lack of geophysical technology that exists today. There has been minimal modern day exploration carried out to date.

The Cobalt Camp Projects include significant exploration upside and further growth opportunities due to minimal modern exploration techniques applied, structures are relatively shallow and amenable to IP analysis and low cost shallow drilling. Former mines provide a significant database for the Company on production assets and for exploration programs to target along strike.

#### **Competent Persons Statement**

The information in this report that relates to Exploration Results is based on information compiled by Mr Gary Grabowski, who is a qualified geologist in Ontario. Mr Grabowski is a geological consultant for the Company. Mr Grabowski has sufficient experience which is relevant to the style of mineralisation and type of deposits under consideration and to the activity which he is undertaking to qualify as a Competent Person as defined in the JORC 2012 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves'. Mr Grabowski consents to their inclusion in the report of the matters based on his information in the form and context in which it appears.

Criteria	JORC Code explanation	Commentary
Sampling techniques	<ul> <li>Nature and quality of sampling (eg cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc). These examples should not be taken as limiting the broad meaning of sampling.</li> <li>Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used</li> <li>Aspects of the determination of mineralisation that are Material to the Public Report. In cases where 'industry standard' work has been done this would be relatively simple (eg 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (eg submarine nodules) may warrant disclosure of detailed information.</li> </ul>	<ul> <li>Where reporting historical production grades or quantaties this ASX Release refers to historical production records from the Ontario Mines Department or subsequent technical reports which have been based on such.</li> <li>Sampling at Lang Caswell by previous explorers – shaft dump reported to consist of 1000 tons by order of magnitude calculations was hand trenched and sampled for assay at random locations. Initial samples submitted for assay on June 30, 1998 showed Cobalt values from 2.64% - 10.76% although silver values were relatively low. This was considered to be the result of high-grade silver mining practices of the past. A second trenching and sampling was done and submitted for assay on July 24, 1998. Assays returned similar low silver values while cobalt values ranged from 2.75% - 12.30% The highest nickel value overall was 3.83%. Other mineral values were negligible.</li> </ul>
Drilling techniques	<ul> <li>Drill type (eg core, reverse circulation, openhole hammer, rotary air blast, auger, Bangka, sonic, etc) and details (eg core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc).</li> </ul>	<ul> <li>No Drilling results have been included in this release. Some historical drill results are available however detailed drilling reports are being compiled.</li> </ul>
Drill sample recovery	<ul> <li>Method of recording and assessing core and chip sample recoveries and results assessed.</li> <li>Measures taken to maximise sample recovery and ensure representative nature of the samples.</li> <li>Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.</li> </ul>	<ul> <li>No Drilling results have been included in this release. Some historical drill results are available however detailed drilling reports are being compiled.</li> </ul>
Logging	<ul> <li>Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies.</li> <li>Whether logging is qualitative or quantitative in nature. Core (or costean,</li> </ul>	<ul> <li>Not applicable as only historical results are available at this stage</li> </ul>

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	<ul><li>channel, etc) photography.</li><li>The total length and percentage of the relevant intersections logged.</li></ul>	
Sub-sampling techniques and sample preparation	<ul> <li>If core, whether cut or sawn and whether quarter, half or all core taken.</li> <li>If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.</li> <li>For all sample types, the nature, quality and appropriateness of the sample preparation technique.</li> <li>Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.</li> <li>Measures taken to ensure that the sampling is representative of the in situ material collected, including for instance results for field duplicate/second-half sampling.</li> <li>Whether sample sizes are appropriate to the grain size of the material being sampled.</li> </ul>	<ul> <li>Not available as only historical results are available at this stage</li> </ul>
Quality of assay data and laboratory tests	<ul> <li>The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.</li> <li>For geophysical tools, spectrometers, handheld XRF instruments, etc, the parameters used in determining the analysis including instrument make and model, reading times, calibrations factors applied and their derivation, etc.</li> <li>Nature of quality control procedures adopted (eg standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (ie lack of bias) and precision have been established.</li> </ul>	<ul> <li>Not available as only historical results are available at this stage.</li> </ul>
Verification of sampling and assaying	<ul> <li>The verification of significant intersections by either independent or alternative company personnel.</li> <li>The use of twinned holes.</li> <li>Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.</li> <li>Discuss any adjustment to assay data.</li> </ul>	<ul> <li>Not available as only historical results are available at this stage.</li> </ul>
Location of data points	<ul> <li>Accuracy and quality of surveys used to locate drill holes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.</li> <li>Specification of the grid system used</li> <li>Quality and adequacy of topographic control.</li> </ul>	<ul> <li>Lang Caswell location data collected from handheld GPS unit in 1998 with an estimated 10m accuracy. Shaft location and mine locations well known and mapped.</li> </ul>
Data spacing and distribution	• Data spacing for reporting of Exploration Results.	<ul> <li>Sampling of Lang Caswell shaft dump was via hand sampling and</li> </ul>

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	<ul> <li>Whether the data spacing and distribution is sufficient to establish the degree of geological and grade continuity appropriate for the Mineral Resource and Ore Reserve estimation procedure(s) and classifications applied.</li> <li>Whether sample compositing has been applied.</li> </ul>	while the results indicate presence of mineralisation the company is unable to determine the continuity of any ore body from this.
Orientation of data in relation to geological structure	<ul> <li>Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.</li> <li>If the relationship between the drilling orientation and the orientation of key mineralised structures is considered to have introduced a sampling bias, this should be assessed and reported if material.</li> </ul>	<ul> <li>Production results and mined grades are calculated from tonnes mined versus metal sold over the mining period. Historical ore body reconciliation data is not available at this stage.</li> </ul>
Sample security	• The measures taken to ensure sample security.	<ul> <li>Not applicable for historical production records.</li> </ul>
Audits or reviews	• The results of any audits or reviews of sampling techniques and data.	<ul> <li>No audits or reviews of sampling completed to date.</li> </ul>

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Mineral tenement and land tenure status	<ul> <li>Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings.</li> <li>The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.</li> </ul>	<ul> <li>Ophiolite holds the Cobalt Camp Project (the "Project") a total claim area of 13,470 acres (5300 hectares) located near the town of Cobalt, Ontario Canada.</li> </ul>
Exploration done by other parties	<ul> <li>Acknowledgment and appraisal of exploration by other parties.</li> </ul>	• The company is in the process of assessing exploration by other parties over the past 100 years. Much of the exploration has been carried out by smaller prospecting companies in a period between 1950-1990.
Geology	<ul> <li>Deposit type, geological setting and style of mineralisation.</li> </ul>	<ul> <li>Mineralisation in the area occurs as silver-cobalt arsenides plus other cobalt arsenides such as skutterudite, cobaltite, smaltite hosted within quartz and calcite veins. Historical sampling from some of these veins shows</li> </ul>

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		exceptionally high grades of cobalt (4-12%) (source: Ontario Ministry of Norther Development and Mines "MNDM"). Within the Project (and regionally) 80-90% of mineralised zones is related to the Nipissing diabase, Huronian sediments and Keewatin volcanics - particularly near contact points between the diabase and the latter two rock types.
Drill hole Information	<ul> <li>A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all Material drill holes:         <ul> <li>easting and northing of the drill hole collar</li> <li>elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar</li> <li>dip and azimuth of the hole</li> <li>down hole length and interception depth</li> <li>hole length.</li> </ul> </li> <li>If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.</li> </ul>	<ul> <li>No drill hole results are included in the reported exploration results. Material information is included in the body of the report.</li> </ul>
Data aggregation methods	<ul> <li>In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (eg cutting of high grades) and cut-off grades are usually Material and should be stated.</li> <li>Where aggregate intercepts incorporate short lengths of high grade results and longer lengths of low grade results, the procedure used for such aggregation should be stated and some typical examples of such aggregations should be shown in detail.</li> <li>The assumptions used for any reporting of metal equivalent values should be clearly stated.</li> </ul>	<ul> <li>Not applicable as historical results reported only.</li> <li>No metal equivalent reporting is applicable to this announcement</li> <li>No metal equivalent values reported</li> </ul>
Relationship between mineralisation widths and intercept lengths	<ul> <li>These relationships are particularly important in the reporting of Exploration Results.</li> <li>If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.</li> <li>If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (eg 'down hole</li> </ul>	• Due to the early stage of exploration at the Cobalt Claims Project relationships between mineralisation is not yet understood. Apart from Co mineralisation being associated with AG mineralisation contained within veins and structures proximal to the

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	length, true width not known').	<ul><li>contact between Nippissing</li><li>Diabase and country rocks.</li><li>No drill hole results are reported</li></ul>
Diagrams	<ul> <li>Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported These should include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views.</li> </ul>	<ul> <li>Included in body of report as deemed appropriate by the competent person for the stage of exploration the company is currently at.</li> </ul>
Balanced reporting	<ul> <li>Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.</li> </ul>	<ul> <li>The company is in the process of compiling historical data hence a comprehensive data set is not available.</li> </ul>
Other substantive exploration data	<ul> <li>Other exploration data, if meaningful and material, should be reported including (but not limited to): geological observations; geophysical survey results; geochemical survey results; bulk samples – size and method of treatment; metallurgical test results; bulk density, groundwater, geotechnical and rock characteristics; potential deleterious or contaminating substances.</li> </ul>	<ul> <li>Meaningful observations included in the body of the report</li> </ul>
Further work	<ul> <li>The nature and scale of planned further work (eg tests for lateral extensions or depth extensions or large-scale step-out drilling).</li> <li>Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.</li> </ul>	<ul> <li>The company plans to compile historical production records and exploration results from the Cobalt Claims Project and then carry out geophysical test work to better identify the contact zone between the Nippissing Diabase and country rocks and where vein swarms sit in relation to this contact. In the summer drilling season drilling it is expected a verification drilling program will be carried out.</li> <li>The company is in early stages of assessment of the project and is not in a position to provide detailed diagrams showing potential extensions at this time.</li> </ul>

<sup>&</sup>lt;sup>i</sup> Teck Corporation, Silverfields Mining Division 28 June 1983; Production Certificate & Letter to MDNM

<sup>&</sup>lt;sup>ii</sup> Marc Gaudreau 6 January 2017; Site Visit and Kirkland Lake MNDM Data Review Report

<sup>&</sup>lt;sup>iii</sup> Petruk, w 1968; Mineralogy and Origin of the Silverfields Silver Deposit in the Cobalt Area, Ontario